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10/554,197	10/24/2005	Kiyohiro Saito	28955.1056	2646

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EXAMINER	
LE, NINH V	

ART UNIT	PAPER NUMBER
1791	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/554,197	SAITO ET AL.	
	Examiner	Art Unit	
	Ninh V. Le	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 June 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,12 and 21-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,12 and 21-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 October 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is a non-final Office action in response to a RCE filed on 6/1/10. Currently, claims 2,12, and 21-31 remains. Claims 1,3-11,13-20, and 32-34 have been cancelled.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Rejection to the claims under 35 U.S.C. 112, second paragraph have been withdrawn due to applicant's amendment/or cancellation of the claim. However, the following claim rejection remains as follow.

Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 24 recites "an amount of the resin material flowing into the product cavity from the resin pit and air gaps other than the product cavity is in a range of 0.1% by volume to 5% by volume of the resin material filled into the product cavity" on line 2-4, however it is unclear if the resin material flowing into the product cavity excludes what is in the product cavity or includes what is from the airs gaps other the air gaps in the product cavity?

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 2 and 22-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimoto US Patent 2002/0036360A1 (hereinafter Nishimoto '360) in view of Sato Atsushi Japanese Publication JP11-262938 (hereinafter Sato '938) (already of record).

Regarding claim 2, Nishimoto '360 discloses a molding method in which a resin material in a molten state is injected from an injection apparatus *(injection apparatus 80 as an injection means for measuring the molten resin...to inject into and fill the injection molding die 50, Figures 1 and 10, [0068])*, filled into a cavity of a first mold *(cavity (3), Figure 10)*, and cooled down to mold a product in a predetermined shape *(Figures 15-17)*, the method comprising: providing a first mold comprising a fixed mold and a movable mold and having a plurality of product cavities to mold products, a runner by which the product cavities are connected to each other, and a resin pit located at a halfway part of the runner *(moveable upper mold (1) stationary lower mold (2) runner (49) cavities (3), Figures 2 and 10; note: resin pit is represented by the portion below the eject pin (35) and above the point where the sprue (48) and runner*

(49) intersects as shown in Figure 10), wherein the movable mold comprises a through-hole which communicates with the resin pit and which is formed in the same direction as a forward/backward moving direction of the movable mold *(As shown in Figure 2, the eject pin (35) which is movable, exists at a center of movable upper mold (1) ([0081]) and therefore it is the Examiner's position that the space occupied by the eject pin (35) is a through-hole which communicates with the resin pit)*; injecting the resin material into the resin pit and thereby filling all of the plurality of product cavities *(Figures 10 and 15, [0111])*.

However, Nishimoto '360 failed to teach a molding method using an ultrasonic vibration and applying ultrasonic vibration to the resin material in the resin pit at a predetermined time and providing a vibrator attached to an ultrasonic oscillator and inserting a tip of the vibrator into the through-hole such that the tip of the vibrator forms a bottom of the resin pit.

In an art relating to injection molding using ultrasonic vibration, Sato '938 discloses in regard to claim 2, a molding method using ultrasonic vibration and applying ultrasonic vibration to the resin material in the resin pit at a predetermined time and providing a vibrator attached to an ultrasonic oscillator and inserting a tip of the vibrator into the through-hole such that the tip of the vibrator forms a bottom of the resin pit (*molding material is supplied…to the cavity 4…At this time, with the high-frequency power from the ultrasonic wave oscillator 10, the ultrasonic vibrator 8 is vibrated...of the whole metallic mold, Drawings 1 and 2, [0024]; note: the vibrator comprise of an ultrasonic vibrator (8), vibrating conversion body (7), and an n-wavelength resonant*

body (9) ([0019] and [0024]) whereby the vibrating conversion body (7) is inserted in a through-hole of of moveable die attachment component (31) as shown in Drawings 1-2. Additionally, the n-wavelength resonant body (9) which is the tip of the vibrator forms a bottom of cavity (4) ([0019]) as shown in Drawings 1-2 and whereby the molding material being is supplied to the cavity (4) while ultrasonic vibration is applied to the whole mold ([0024])).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching Nishimoto '360 with that of Sato '938 by combining the molding method and an apparatus having a movable mold comprising a through-hole which communicates with the resin pit as disclosed by Nishimoto '360 with the use of an ultrasonic vibration to the resin material whereby the ultrasonic vibration comprise of a vibrator as disclosed by Sato '938 for the benefit of shortening the molding cycle, eliminating transfer unevenness (Sato '938, [0043]), and preventing gradual cooling of a resin during molding (Sato '938, Abstract).

Regarding claim 22, Nishimoto '360 and Sato '938 discloses wherein the predetermined time is after commencing injecting resin material to at least part of the resin pit while the resin material in the runner has a predetermined viscosity *(as stated in the aforementioned rejection in claim 2; note: resin material inherently has a viscosity)*.

Regarding claim 23, Nishimoto '360 discloses wherein the resin material is filled into the product cavity and compressed *(molten resin…filled into the cavity and volume of the cavity is reduced, Figure 10, Abstract,[0107])*.

However, Nishimoto '360 failed to teach the ultrasonic vibration is applied while a compressed state is maintained.

In an art relating to injection molding using ultrasonic vibration, Sato '938 discloses in regard to claim 23, the ultrasonic vibration is applied while a compressed state is maintained *(molding material is supplied…to the cavity 4…At this time, with the high-frequency power from the ultrasonic wave oscillator 10, the* ***ultrasonic vibrator 8 is vibrated...of the whole metallic mold****, Drawings 1 and 2, [0024]); Note: Drawings 1 and 2 shows the movable die (3) and fixed mold (2) in a compressed state)*.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching Nishimoto '360 with that of Sato '938 by combining the molding method and an apparatus having a movable mold comprising a through-hole which communicates with the resin pit as disclosed by Nishimoto '360 with the use of an ultrasonic vibration while in a compressed state whereby the ultrasonic vibration comprise of a vibrator as disclosed by Sato '938 for the benefit of shortening the molding cycle, eliminating transfer unevenness (Sato '938, [0043]), and preventing gradual cooling of a resin during molding (Sato '938, Abstract) and maximizing the packing density of the solidified resin material.

Regarding claim 24, Nishimoto '360 and Sato '938 discloses wherein the ultrasonic vibration is applied to an amount of the resin material *(as stated in the aforementioned rejection in claim 2)*.

Nishimoto '360 disclose the claimed invention except for an amount of the resin material flowing into the product cavity from the resin pit and air gaps other than the product cavity is in a range of 0.1% by volume to 5% by volume of the resin material filled into the product cavity. However, Nishimoto '360 does disclose that molten resin is injected into the moldset (45) through the channel of the injection nozzle (85) whereby the molten resin is filled into the cavity (3) through the sprue (48) and runner (49) ([0106]) as shown in Figures 9-10 and 2. In the process of filling the cavity (3), the resin pit is also filled as shown in Figures 9-10. Additionally, Nishimoto '360 discloses that when 90 to 95% of the molten resin injection is completed, the molding process begins thereby preventing the molten resin from flowing back to the runner (49) from the gate (G) ([0117],[0107]-[0110]). As a result, the molten resin is prevented from developing internal strain thereby obtaining spectacle lens that have high accuracy and high quality ([0117]).

Thus, one would have been motivated to have an amount of the resin material flowing into the product cavity from the resin pit and air gaps other than the product cavity in a certain range of % by volume of the resin material filled into the product cavity, including those at 0.1% by volume to 5% by volume because it has been demonstrated that such a variable is result effective, such variable is related to preventing the molten resin from developing internal strain thereby obtaining spectacle

lens that have high accuracy and high quality. Discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 25, Nishimoto '360 discloses a gate in communication with the product cavity is sealed *(insert 11 descends toward the insert 12…Simultaneously, the gate shut pin 111 protrudes into the gate G to gradually close the opening of the gate G, Figures 1 and 12, [0109]; note: gate shut pin (111) is synchronized with the movement of the insert (11) ([0117],Abstract)).*

However, Nishimoto '360 failed to teach wherein the ultrasonic vibration is applied immediately after injecting the resin material is started.

In an art relating to injection molding using ultrasonic vibration, Sato '938 discloses in regard to claim 25, wherein the ultrasonic vibration is applied immediately after the filling of the resin material is started *(molding material is supplied…to the cavity 4…At this time, with the high-frequency power from the ultrasonic wave oscillator 10, the* ***ultrasonic vibrator 8 is vibrated...of the whole metallic mold****, Drawings 1 and 2, [0024])*.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching Nishimoto '360 with that of Sato '938 by combining the molding method and an apparatus having a movable mold comprising a through-hole which communicates with the resin pit and a gate in communication with the product cavity that is sealed as disclosed by Nishimoto '360 with the use of an ultrasonic vibration that is applied immediately after the filling of

the resin material is started as disclosed by Sato '938 for the benefit of shortening the molding cycle, eliminating transfer unevenness (Sato '938, Page 9 Paragraph [0043]), and preventing gradual cooling of a resin during molding (Sato '938, Abstract).

Regarding claim 26, Nishimoto '360 discloses wherein a nozzle of a molding machine supplying the resin material to the first mold is closed immediately after the filling of the resin material is completed *(injection nozzle 85 is closed…after completion of injecting and filling the molten resin, Figure 10, [0107])*.

Regarding claims 27-29, Nishimoto '360 discloses wherein the product is an optical lens. Wherein the optical lens is a spectacle lens *(Figure 17)*, and the method further comprises subjecting the obtained spectacle lens to a surface treatment *(lens 102 of the molding 101 is immersed in hardwearing hard coating fluid, [0115]; note: molding (101) has two spectacle lenses (102) ([0114]))*.

Claims 12,21, and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimoto US Patent 2002/0036360A1 (hereinafter Nishimoto '360) in view of Sato Atsushi Japanese Publication JP11-262938 (hereinafter Sato '938) (already of record). Examiner wishes to point out to applicant that claims 12,21, and 30-31 are directed towards an apparatus and as such will be examined under such conditions. The material worked upon or the processes of using the apparatus are viewed as recitation of intended use and are given little patentable weight (Please see MPEP 2114 R1-2115 R2 for further details).

Regarding claim 12, Nishimoto '360 discloses a molding machine for injecting a resin material from an injection apparatus *(injection apparatus 80 as an injection means for measuring the molten resin...to inject into and fill the injection molding die 50, Figures 1 and 10, Page 4 Paragraph [0068])* into a cavity formed in a first mold *(Figures 2 and 10, molding die (50) cavity (3))* and for compressing the resin material to mold a product in a predetermined shape, the molding machine comprising:

a first mold comprising a fixed mold and a movable mold and having a plurality of product cavities for molding products, wherein the movable mold comprises a through-hole which communicates with the resin pit and which is formed in the same direction as a forward/backward moving direction of the movable mold *(moveable upper mold (1) stationary lower mold (2) runner (49) cavities (3), Figures 2 and 10; note: resin pit is represented by the portion below the eject pin (35) and above the point where the sprue (48) and runner (49) intersects as shown in Figure 10. Also note, as shown in Figure 2, the eject pin (35) which is movable, exists at a center of movable upper mold (1) ([0081]) and therefore it is the Examiner's position that the space occupied by the eject pin (35) is a through-hole which communicates with the resin pit)*; a runner connecting the product cavities to each other *(runner (49) cavity (3), Figures 2 and 10)*;
a resin pit located at a halfway part of the runner *(as stated above)*; an injection apparatus for injecting a resin material into said resin pit, thereby filling the plurality of product cavities with resin via said runner *(Figures 1 and 10; note: dummy and product cavities are represented by Numbering element 3)*.

However, Nishimoto '360 failed to teach an ultrasonic oscillator for applying ultrasonic vibration to resin material in the resin pit, wherein a vibrator attached to the ultrasonic oscillator, is inserted into the through-hole such that a tip of the vibrator forms a bottom of the resin pit.

In an art relating to injection molding using ultrasonic vibration, Sato '938 discloses in regard to claim 12, an ultrasonic oscillator for applying ultrasonic vibration to resin material in the resin pit, wherein a vibrator attached to the ultrasonic oscillator, is inserted into the through-hole such that a tip of the vibrator forms a bottom of the resin pit (*cavity (4) ultrasonic wave oscillator (10), Drawings 1 and 2; note: the vibrator comprise of an ultrasonic vibrator (8), vibrating conversion body (7), and an n-wavelength resonant body (9) ([0019] and [0024]) whereby the vibrating conversion body (7) is inserted in a through-hole of of moveable die attachment component (31) as shown in Drawings 1-2. Additionally, the n-wavelength resonant body (9) which is the tip of the vibrator forms a bottom of cavity (4) ([0019]) as shown in Drawings 1-2 and whereby the molding material being is supplied to the cavity (4) while ultrasonic vibration is applied to the whole mold ([0024]).*

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching Nishimoto '360 with that of Sato '938 by combining an apparatus having a movable mold comprising a through-hole which communicates with the resin pit as disclosed by Nishimoto '360 with the use of an ultrasonic vibration comprising of a vibrator as disclosed by Sato '938 for

the benefit of shortening the molding cycle, eliminating transfer unevenness (Sato '938, [0043]), and preventing gradual cooling of a resin during molding (Sato '938, Abstract).

Regarding claims 21, Nishimoto '360 discloses wherein a resin-holding capacity of the resin pit relative to each of the product cavities *(Figures 2 and 10, cavity (Numbering element 3); note: resin pit is represented by the portion below the eject pin (Numbering element 35 and above the point where the sprue (Numbering element 48) and runner (Numbering element 49) intersects as shown in Figure 10)* is between 10% and 40%.

Regarding claims 30-31, Nishimoto '360 discloses wherein the first mold has a sprue in communication with the runner. Wherein the resin pit is located at a midpoint on the runner *(molding die (50) sprue (48) runner (49), Figures 2 and 10; note: resin pit is represented by the portion below the eject pin (35) and above the point where the sprue (48) and runner (49) intersects as shown in Figure 10).*

Response to Argument

Applicant's arguments filed 6/1/10 have been fully considered but they are not persuasive.

Regarding the advantages of Applicant's invention, Applicant alleged that Applicant's molding method achieves superior molding accuracy and quality. Additionally, Applicant argued that Applicant's apparatus configuration is effective in reducing internal strain and improving transferability.

It is submitted that Nishimoto discloses a molding process whereby internal strain of the molten resin is prevented thereby obtaining spectacle lens having high accuracy and high quality ([0117],[0018],[0024],[0037]). Nishimoto further discloses improvement in transferability of the molten resin to the cavity (Abstract). Sato on the other hand, discloses a molding process comprising of an ultrasonic vibration that is applied to molding material which supplied in a cavity ([0024]) thereby preventing both gradual cooling of the resin (Abstract) and transfer unevenness ([0043]), thus obtaining a product that is superior in quality ([0006]). It is to be noted that the evidence disclosed in Applicant's specification (page 6 line 9-11, page 8 line 9-16, page 4 line 3-8, page 4 line 21-30, page 5 line 5-14, page 7 line 1-4, page 7 line 18-21, page 15 line 7-28) hasn't been sufficiently provided to demonstrate unexpected results of achieving superior molding accuracy, superior quality, reducing internal strain, and improving transferability. Additionally, the example (applicant specification on pages 26-28) has not provided sufficient evidence to demonstrate unexpected result of reducing internal strain and improving transferability. The lack of objective evidence of nonobviousness does not weigh in favor of obviousness. *Miles Labs. Inc. v. Shandon Inc.*, 997 F.2d 870, 878, 27 USPQ2d 1123, 1129 (Fed. Cir. 1993), *cert. denied*, 127 L. Ed. 232 (1994). Where the unexpected properties of a claimed invention are not shown to have a significance equal to or greater than the expected properties, the evidence of unexpected properties may not be sufficient to rebut the evidence of obviousness. *In re Nolan*, 553 F.2d 1261, 1267, 193 USPQ 641, 645 (CCPA 1977).

Regarding amended claims 2 and 12, Applicant argued that neither Nishimoto nor Sato discloses a through-hole which communicates with the resin pit and which is formed in the same direction as a forward/backward moving direction of the movable mold; providing a vibrator attached to an ultrasonic oscillator and inserting a tip of the vibrator into the through-hole such that the tip of the vibrator forms a bottom of the resin pit; and injecting the resin material into the resin pit. Additionally, Applicant argued that neither Nishimoto nor Sato discloses applying ultrasonic vibration to the resin material in the resin pit, but instead, the combination would teach applying the resin material to the product cavity itself. Furthermore, Applicant alleged that Sato's cavity 4 is distinct from Applicants' claimed resin pit which is located at a halfway part of applicants' claimed runner which connects the product cavities. Thus, the resin pit is distinct from the product cavity.

In response, the Examiner respectfully disagrees. It is submitted that both Nishimoto and Sato teaches all of the limitation as alleged by Applicant as demonstrated above. In response to applicant's arguments against the references individually (i.e. Nishimoto nor Sato discloses applying ultrasonic vibration to the resin material in the resin pit and Sato's cavity 4 is distinct from Applicants' claimed resin pit which is located at a halfway part of Applicants' claimed runner which connects the product cavities. Thus, the resin pit is distinct from the product cavity), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). It is

submitted as demonstrated above that Nishimoto discloses a resin pit containing resin material whereby the resin pit is located halfway part of the runner and cavities that are connected to each other by the runner as shown in Figures 2,10, and 15. Sato on the other hand, discloses a molding material that is applied to a cavity whereby ultrasonic vibration is vibrated to the entire mold ([0024]). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching Nishimoto '360 with that of Sato '938 by combining the molding method and an apparatus having a movable mold comprising a through-hole which communicates with the resin pit as disclosed by Nishimoto '360 with the use of an ultrasonic vibration to the resin material whereby the ultrasonic vibration comprise of a vibrator as disclosed by Sato '938 for the benefit of shortening the molding cycle, eliminating transfer unevenness (Sato '938, [0043]), and preventing gradual cooling of a resin during molding (Sato '938, Abstract).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ninh V. Le whose telephone number is (571)270-3828. The examiner can normally be reached on Monday - Friday 7:30 AM - 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Del Sole can be reached on (571)272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NVL

/Joseph S. Del Sole/

Supervisory Patent Examiner, Art Unit 1791